# Fall 2015 Levee Maintenance Deficiency Summary Report Overall LMA & Unit Ratings, including USACE Erosion Survey

### Sacramento River Basin

NA0021 Yolo County Planning Resources and	Overall LMA Rating	Total LMA Miles						
Public Works	U	0.59						
Rated Item		Maintena	nce Deficiancy		Enforc	ement	Design & System Obsolescence	
Rateu item	M Miles	U Miles	M + 4U Miles	Threshold %	M Miles	U Miles	M Miles	U Miles
Earthen Levee								
Vegetation	0.61	0.20	1.41	240.27%				
Trim / Thin Trees	0.03		0.03	5.11%				
Encroachments					0.04			
Animal Control		0.04	0.16	27.26%				
Slope Stability	0.01		0.01	1.70%				
Operations & Maintenance Manuals		0.02	0.09	15.34%				
Supplemental							<u>'</u>	
DWR UCIP Field Study					0.01			
LMA Totals:	0.65	0.26	1.70	289.69%	0.05	0.00	0.00	0.00

# LMA District Cover Sheet Fall 2015 Levee Inspection Results

# **Yolo County Planning Resources and Public Works**

	Spring (March - May)	Summer ** (June - August)	Fall (September - November)	Winter ** (December - February)						
* Overall LMA Rating (Fall Only)			U							
	** Non-receipt of Su	ımmer or Winter Inspe	ection Reports may effec	ct overall annual rating						
* SPRING INSPECTIONS: Overall maintenance ratings are not determined for the spring inspection results. Individual maintenance deficiencies are rated using the same criteria in the spring and in the fall.  FALL INSPECTIONS: The overall maintenance rating shown above is based on operation and maintenance deficiencies identified within the attached unit inspection reports. This rating is not intended to be an indiction of risk.										
omments										

### **Unit Cover Sheet**

### Fall 2015 Levee Inspection Results

# **Yolo County Planning Resources and Public Works**

Waterway	Bank	Unit Miles
Unit No. 01 Right Bank Cache Creek	Right	0.59

	Spring (March - May)	Summer (June - August)	(September - November) Fall	Winter (December - February)
Unit Maintenance Rating (Fall Only)			U	
Date of Inspection	04/09/2015 - 04/09/2015		09/18/2015 - 09/18/2015	
DWR Inspector	Jai Lor		Jai Lor	
Accompanied By				

#### **Summer & Winter Inspections**

The Local Maintaining Agency (LMA) is responsible for summer and winter inspections. The LMA is required to submit a report regarding summer and winter inspections to the California Department of Water Resources (DWR).

DWR must be informed on the:

- a) completion of the inspection
- b) any changes other than the results of normal maintenance
- c) corrections to deficiencies noted in this report

If additional items are noted, further documentation of those items must also be submitted.

The LMA should submit this information to DWR using the LMA web application tool available at:

### http://cdec.water.ca.gov/lma.html

If the LMA is unable to submit information on this webpage, please contact DWR for assistance.

The LMA should submit the information and any associated documentation by September 30 for summer inspections and March 31 for winter inspections.

### Levee Inspection Report By Mile - Fall 2015

# **Yolo County Planning Resources and Public Works**

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Right Bank Cache Creek	Right	0.59	09/18/2015 09/18/2015	Jai Lor

LM Start		Rating **	U	Issue No.		5		
		Janua Tuma i	14-	Location *				
LM End		Issue Type +	Ma	Location		N/A		
Category Earthen Levee			GPS Latitude/Longitude					
Odlogory		Start		End				
Item	Operations & Maintenance				0		0	
пеш	Manuals				0		0	
DWR ID	DWR_NA0	021_01_s _ 201	2_5	'				
	Action/Comments							
Inspector	Comments	: Yolo County	Plannin	g Resource	s ar	nd Public		

Works does not have levee manuals for their levees.

Rating \*\* Issue No. LM Start 11 Location \* LM End Issue Type + Ma N/A Earthen Levee GPS Latitude/Longitude Category End **Emergency Supplies &** Item Equipment DWR ID DWR\_NA0021\_01\_s \_ 2012\_11 Action/Comments

Inspector Comments: Yolo County OES maintains a stockpile of flood response material.

Rating \*\* Issue No. LM Start Issue Type + Location \* N/A Ma LM End Earthen Levee GPS Latitude/Longitude Category Flood Preparedness & Training Item DWR ID DWR\_NA0021\_01\_s \_ 2012\_12 Action/Comments

Inspector Comments: Yolo County OES has a written response plan and response training.

No Photos

No Photos

No Photos

### Levee Inspection Report By Mile - Fall 2015

# **Yolo County Planning Resources and Public Works**

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Right Bank Cache Creek	Right	0.59	09/18/2015 09/18/2015	Jai Lor

LM Start	0.03	Rating **	М	Issue No.	3		
LM End	0.26	Issue Type +	Ма	Location *	WS		
Category Earthen Levee			GPS Latitude/Longitude				
Calegory	Category			Start		End	
Item	Vegetatio	n		38.7208	79°	38.722424	0
пеш				-121.8104	99°	-121.806979	0
DWR ID DWR_NA0021_01_f _ 2015_3							
Action/Comments							

Control annual grass and weeds on the levee slopes and easements.



View of the vegetation on the waterward side of the levee looking downstream. Fall 2015.

LM Start	0.03	Rating **	М	Issue No.		15	
LM End	0.03	Issue Type +	En	Location *	WS		
Earthen Levee				GPS La	atitud	e/Longitude	
Calegory	Category					End	
Item	Encroach	Encroachments			95 °	38.720895 °	
item		-121.810408				-121.810408 °	
DWR ID	DWR_NA0	021_01_f _ 201	5_15				
		Action/	Comme	nts			
Debris							



View of the debris on the waterward side of the levee. Fall 2015.

LM Start	0.18	Rating **	U	Issue No.	16			
LM End	0.22	Issue Type +	Ma	Location *	LS			
Category Earthen Levee				GPS Latitude/Longitude				
Category	gory			Start		End		
Item	Animal Co	ontrol		38.72154	2 °	38.721918 °		
item		-121.807778 °		-121.807373 °				
DWR ID	DWR_NA0	021_01_s _ 201	5_16			·		
	Action/Comments							

Exterminate rodents and backfill and compact or grout burrows.



View of the rodent hole on the landward side of the levee looking downstream. Spring 2015.

* Location	** Rating		+ Issue Type
LS : Land Side N/A : Not Applicable WS : Water Side CR : Crown	A : Acceptable M : Minimally Acceptable U : Unacceptable	N : Not Inspected/Rated C : Corrected A/W : Acceptable but Monitor & Maintain	Ma : Maintenance Deficiancy Ob : Design & System Obsolescence En : Enforcement

### Levee Inspection Report By Mile - Fall 2015

## **Yolo County Planning Resources and Public Works**

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Right Bank Cache Creek	Right	0.59	09/18/2015 09/18/2015	Jai Lor

LM Start	0.24	Rating **	М	Issue No.		23	
LM End	0.24	Issue Type +	En	Location *		LS	
Supplemental				GPS Latitude/Longitude			
Category				Start		End	
Item	DWR UCI	P Field Study		38.72216	32 °	38.722162 °	
пеш				-121.80722	23 °	-121.807223 °	
DWR ID							

Action/Comments

Inspector Comments: FS\_ID:39855

DS\_ID:19554 EP\_NO: 6790 FS\_HLM: 0

Repair Type: Non-Urgent Crossing Status: Indicator Found

UCIP Comments: Need to contact owner to determine if crossing is still active and to determine last inspection date. Will need copy of letter showing crossings passed inspection.

FIELD\_STRUCT\_DESC: 6-inch gas line through levee, 4-feet below the crown. Pipe extends from borrow area and under the channel. Bleeder valve on waterward bank. Service vault located on landward side next to access gate. Paved access ramp on landward slope. (Permit No.

6790-1970)

FS Date: 04/16/2013

LM Start	0.24	Rating **	М	Issue No.	23 (cont)
LM End	0.24	Issue Type +	En	Location *	LS



View of landward side near access gate. Gas line marker located on between trees. Line runs parallel to access roadway and through levee.

Photo 2 of 3: UCIP\_FA\_2015\_4839.jpg



Service vault located on landward toe near gate access gate.

### **Levee Inspection Report By Mile - Fall 2015**

# **Yolo County Planning Resources and Public Works**

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Right Bank Cache Creek	Right	0.59	09/18/2015 09/18/2015	Jai Lor

LM Start	0.24	Rating **	М	Issue No.		23 (cont)			
LM End	0.24	Issue Type +	En	Location *	LS				
Category			GPS Latitude/Longitude						
Category			Start		End				
Item	DWR UCIP Field Study			38.7221	62 °	38.722162	0		
пеш				-121.8072	23 °	-121.807223	0		
DWR ID	DWR ID								
Action/Comments									
Inspector (	Inspector Comments: FS_ID:39855								

DS\_ID:19554 EP\_NO: 6790

FS\_HLM: 0 Repair Type: Non-Urgent Crossing Status: Indicator Found



View of gas line marker located on levee crown.

LM Start	0.26	Rating **	М	Issue No.		4
LM End	0.26	Issue Type +	En	Location *		WS
Category	Earthen Levee			GPS La	atitud	le/Longitude
Category						End
Item	Encroachi	Encroachments			18 °	38.722418 °
item	item				99°	-121.806999 °
DWR ID	DWR_NA0	021_01_s _ 201	2_4			
		Action/	Comme	nts		
Prunings						

LM Start	0.26	Rating **	М	Issue No.	4 (cont)
LM End	0.26	Issue Type +	En	Location *	WS



A continuous brush pile on levee. Spring 2013

Photo 2 of 3: FA\_2015\_NA0021\_351\_4\_20150914\_00005.jpg



The brush pile did not get burned this last winter. Spring 2014

* Location	** Rating		+ Issue Type
LS : Land Side N/A : Not Applicable WS : Water Side CR : Crown	A : Acceptable M : Minimally Acceptable U : Unacceptable	N : Not Inspected/Rated C : Corrected A/W : Acceptable but Monitor & Maintain	Ma : Maintenance Deficiancy Ob : Design & System Obsolescence En : Enforcement

### Levee Inspection Report By Mile - Fall 2015

# **Yolo County Planning Resources and Public Works**

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Right Bank Cache Creek	Right	0.59	09/18/2015 09/18/2015	Jai Lor

	_					
LM Start	0.26	Rating **	М	Issue No.		4 (cont)
LM End	0.26	Issue Type +	En	Location *		WS
Category	Earthen L	evee		GPS La	atitud	e/Longitude
Calegory			Start		End	
Item	Encroachments			38.7224	18 °	38.722418 °
пеш				-121.806999 °		-121.806999 °
DWR ID DWR_NA0021_01_s _ 2012_4						
		Action/	Comme	nts		
Prunings						

h	oto 3 of 3 : FA_2015_NA0021_351_4_20150914_00006.jp
	A PART OF THE PART

The latest look of the ongoing brush pile. Fall 2013

LM Start	0.26	Rating **	М	Issue No.	18	
LM End	0.26	Issue Type +	En	Location *		LS
Category	Earthen L	evee		GPS La	atitud	e/Longitude
Odlogory				Start		End
Item	Encroachments			38.7224	24 °	38.722424
iteiii				-121.806977 °		-121.806977
DWR ID	DWR_NA0	021_01_s _ 201	5_18			
		Action/	Comme	nts		
Equipment	t					



View of equipments on the landward side of the levee looking downstream. Spring 2015.

LM Start	0.27	Rating **	М	Issue No.		22	
LM End	0.27	Issue Type +	Ma	Location *		WS	
Category Earthen Levee			GPS Latitude/Longitude				
Category	Category			Start		End	
Item	Slope Sta	bility		38.72262	20 °	38.722620 °	
пеш				-121.806958 ° -121.8069			
DWR ID DWR_NA0021_01_f _ 2015_22							
Action/Comments							

Repair the levee slope damaged by vehicle traffic and prevent access where possible.

Inspector Comments: A vehicle ramp seems to have been made.



Perspective view of the trail on the waterward side of the levee looking downstream. Fall 2015.

* Location	** Rating		+ Issue Type
LS : Land Side N/A : Not Applicable WS : Water Side CR : Crown	A : Acceptable M : Minimally Acceptable U : Unacceptable	N : Not Inspected/Rated C : Corrected A/W : Acceptable but Monitor & Maintain	Ma : Maintenance Deficiancy Ob : Design & System Obsolescence En : Enforcement

# Levee Inspection Report By Mile - Fall 2015

# **Yolo County Planning Resources and Public Works**

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Right Bank Cache Creek	Right	0.59	09/18/2015 09/18/2015	Jai Lor

Situde					
itude					
End					
.722620 °					
.806958 °					
DWR ID DWR_NA0021_01_f _ 2015_22					
3					

#### Action/Comments

Repair the levee slope damaged by vehicle traffic and prevent access where possible.

Inspector Comments: A vehicle ramp seems to have been made.

LM Start	0.27	Rating **	М	Issue No.	22 (cont)
LM End	0.27	Issue Type +	Ma	Location *	WS



View of the trail on the waterward side of the levee. Fall 2015.

Photo 3 of 3: FA\_2015\_NA0021\_351\_22\_20150921\_00031.jpg



The trail seems to be an access point that leads down to Cache Creek. Fall 2015.

Photo 1 of 1: FA\_2015\_NA0021\_351\_14\_20150921\_00024.jpg

LM Start	0.27	Rating **	A/W	Issue No.		14
LM End	0.27	Issue Type +	Ma	Location *	WS	
Category	Earthen Levee			GPS Latitude/Longitude		
Category			Start		End	
Item	Vegetatio	Vegetation			33 °	38.722633 °
item	ım			-121.80693	38 °	-121.806938 °
DWR ID	DWR_NA0021_01_s _ 2012_14					
Action/Comments						

Elderberries are blocking visibility and flood fight capability.



View of the elderberry on the waterward side of the levee looking downstream. Fall 2015.

* Location	** Rating		+ Issue Type
LS : Land Side N/A : Not Applicable	A : Acceptable	N : Not Inspected/Rated	Ma : Maintenance Deficiancy
WS : Water Side	M : Minimally Acceptable	C : Corrected	Ob : Design & System Obsolescence
CR : Crown	U : Unacceptable	A/W: Acceptable but Monitor & Maintain	En : Enforcement

### Levee Inspection Report By Mile - Fall 2015

# **Yolo County Planning Resources and Public Works**

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Right Bank Cache Creek	Right	0.59	09/18/2015 09/18/2015	Jai Lor

LM Start	0.28	Rating **	С	Issue No.		19	
LM End	0.30	Issue Type +	Ma	Location *		LS	
Category	Earthen Levee			GPS Latitude/Longitude			
Calegory	Category			Start		End	
Item	Trim / Thi	Trim / Thin Trees		38.7226	99 °	38.723001	0
пеш				-121.8069	20°	-121.806864	0
DWR ID	DWR_NA0	021_01_s _ 201	2_19				
	Action/Comments						

Trim and thin trees to allow visibility of the ground and room to flood fight.

No Photos

LM Start	0.30	Rating **	М	Issue No.	13		
LM End	0.50	Issue Type +	Ma	Location *	CR		
Category Earthen Levee			GPS Latitude/Longitude				
Calegory				Start		End	
Item	Vegetation			38.7230	17 °	38.725844 °	
пеш			-121.806879 °		-121.806516 °		
DWR ID DWR_NA0021_01_s _ 2014_13							
Action/Comments							

Keep the crown roadway free of vegetation.

### Photo 1 of 1: FA\_2015\_NA0021\_351\_13\_20150914\_00012.jpg



Vegetation on the crown needs to be controlled. Spring 2014

LM Start	0.30	Rating **	U	Issue No.	17		
LM End	0.50	Issue Type +	Ma	Location *	WS		
Category	Earthen Levee			GPS Latitude/Longitude			
Category		Start		End			
Item	Vegetatio	Vegetation			41 °	38.725887 °	
item			-121.806877 °		7° -121.806550		
DWR ID DWR_NA0021_01_s _ 2012_17							
Action/Comments							

Remove the wild growth other than native grasses from the levee slopes.



View of the vegetation on the waterward side of the levee looking downstream. Fall 2015.

* Location	** Rating		+ Issue Type
LS : Land Side N/A : Not Applicable WS : Water Side CR : Crown	A : Acceptable M : Minimally Acceptable U : Unacceptable	N : Not Inspected/Rated C : Corrected A/W : Acceptable but Monitor & Maintain	Ma : Maintenance Deficiancy Ob : Design & System Obsolescence En : Enforcement

### **Levee Inspection Report By Mile - Fall 2015**

# **Yolo County Planning Resources and Public Works**

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Right Bank Cache Creek	Right	0.59	09/18/2015 09/18/2015	Jai Lor

LM Start	0.33	Rating **	М	Issue No.		1	
LM End	0.50	Issue Type +	Ма	Location *		LS	
Category	Earthen L	arthen Levee			GPS Latitude/Longitude		
Calegory				Start		End	
Item	Vegetatio	n		38.72338	1°	38.725835 °	
пеш				-121.80678	3°	-121.806526 °	
DWR ID	DWR_NA0	021_01_s _ 201	5_1				

### Action/Comments

Remove the wild growth other than native grasses from the levee slopes.

Inspector Comments: This area now has been declared a habitat restoration area by the Cache Creek Conservancy.

LM Start	0.33	Rating **	М	Issue No.	1 (cont)
LM End	0.50	Issue Type +	Ma	Location *	LS



Vegetation on levee slopes and crown. Fall 2014.

Photo 2 of 3: FA\_2015\_NA0021\_351\_1\_20150914\_00002.jpg



View of vegetation on the landward side of the levee looking downstream. Spring 2015.

LM Start	0.33	Rating **	М	Issue No.	1 (cont)
LM End	0.50	Issue Type +	Ma	Location *	LS



Vegetation needs to be mowed taller than 12". Spring 2013

\* Location

LS : Land Side N/A : Not Applicable WS : Water Side CR : Crown

\*\* Rating

A : Acceptable N : Not Inspected/Rated M : Minimally Acceptable U : Unacceptable U : Unacceptable U : WA : Acceptable but Monitor & Maintain

\*\* Rating

A : Not Inspected/Rated Ma : Maintenance Deficiancy
Ob : Design & System Obsolescence
En : Enforcement

### Levee Inspection Report By Mile - Fall 2015

# **Yolo County Planning Resources and Public Works**

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Right Bank Cache Creek	Right	0.59	09/18/2015 09/18/2015	Jai Lor

LM Start	0.36	Rating **	М	Issue No.		20
LM End	0.36	Issue Type +	Ma	Location *		LS
Category	Earthen Levee			GPS Latitude/Longitude		
Calegory						End
Item	Vegetatio	n		38.72380	)2 °	38.723802 °
item					00°	-121.806700 °
DWR ID	DWR_NA0021_01_s _ 2015_20					
		Action/	Comme	nte		

Elderberries are blocking visibility and flood fight capability.



View of the elderberry on the waterward side of the levee looking downstream. Fall 2015.

LM Start	0.36	Rating **	М	Issue No.		6
LM End	0.36	Issue Type +	Ma	Location *		LS
Category Earthen Levee				GPS Latitude/Longitude		
Calegory	alegory					End
Item	Trim / Thi	n Trees		38.7239	03 °	38.723903 °
пеш				-121.8066	13 °	-121.806613 °
DWR ID	WR ID DWR_NA0021_01_s _ 2012_6					
		Action/	Comme	nte		

Trim trees to at least five feet above ground level.



View of the tree on the landward side of the levee looking downstream. Fall 2015.

LM Start	0.38	Rating **	С	Issue No.		7	
LM End	0.38	Issue Type +	Ma	Location *		LS	
Category	Earthen L	Earthen Levee			atitud	e/Longitude	
Calegory				Start		End	
Item	Trim / Thi	n Trees		38.7241	65 °	38.724165	0
пеш				-121.8065	52 °	-121.806552	0
DWR ID	R ID DWR_NA0021_01_s _ 2012_7						
	Action/Comments						
							_

Trim trees to at least five feet above ground level.

No Photos

* Location	** Rating		+ Issue Type
LS : Land Side N/A : Not Applicable WS : Water Side	A : Acceptable M : Minimally Acceptable	N : Not Inspected/Rated C : Corrected	Ma : Maintenance Deficiancy Ob : Design & System Obsolescence
CR : Crown	U : Unacceptable	A/W : Acceptable but Monitor & Maintain	En : Enforcement

# Levee Inspection Report By Mile - Fall 2015

# **Yolo County Planning Resources and Public Works**

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Right Bank Cache Creek	Right	0.59	09/18/2015 09/18/2015	Jai Lor

LM Start	0.40	Rating **	С	Issue No.		8				
LM End	0.40	Issue Type +	Ма	Location *		LS				
Category	Earthen Levee			GPS Latitude/Longitude						
Category				Start		End				
Item	Trim / Thin Trees				45 °	38.724445	0			
пеш				-121.8065	05 °	-121.806505	0			
DWR ID	DWR_NA0021_01_f _ 2015_8									
		Action/	Comme	nts	Action/Comments					

Trim trees to at least five feet above ground level.

No Photos

LM Start	0.44	Rating **	М	Issue No.		9
LM End	0.44	Issue Type +	Ma	Location *		LS
Category	Earthen Levee			GPS Latitude/Longitude		
Calegory		Start		End		
Item	Trim / Thi	n Trees		38.7250	22 °	38.725022 °
пеш				-121.8064	78 °	-121.806478 °
DWR ID	DWR ID DWR_NA0021_01_s _ 2012_9					
	Action/Comments					

Trim trees to at least five feet above ground level.

LM Start	0.44	Rating **	М	Issue No.	9 (cont)
LM End	0.44	Issue Type +	Ma	Location *	LS

# Photo 1 of 2: FA\_2015\_NA0021\_351\_9\_20150914\_00010.jpg



Trees need to be trimmed to 5'. Spring 2013

Photo 2 of 2: FA\_2015\_NA0021\_351\_9\_20150921\_00030.jpg



View of the tree that needs to be trimmed on the landward side of the levee looking downstream. Fall 2015.

### Levee Inspection Report By Mile - Fall 2015

# **Yolo County Planning Resources and Public Works**

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Right Bank Cache Creek	Right	0.59	09/18/2015 09/18/2015	Jai Lor

LM Start	<b>0.47</b> Rating ** M		Issue No.		10	
LM End	0.47	Issue Type +	Ma	Location *		LS
Category Earthen Levee			GPS Latitude/Longitude			
				Start		End
Trim / Thin Trees			38.72542	27 °	38.725427	
item				-121.80647	70°	-121.806470
DWR ID DWR_NA0021_01_s _ 2012_10						
Action/Comments						

Trim trees to at least five feet above ground level.

LM Start	0.47	Rating **	М	Issue No.	10 (cont)
LM End	0.47	Issue Type +	Ма	Location *	LS



The tree needs to be trimmed up. Photo taken fall of 2011.

Photo 2 of 2: FA\_2015\_NA0021\_351\_10\_20150921\_00029.jpg



View of the tree on the landwardside of the levee looking downstream. Fall 2015.

							_
LM Start	0.49	Rating **	М	Issue No.	21		
LM End	0.49	Issue Type +	En	Location *		WS	
Category Earthen Levee		GPS Latitude/Longitude					
		Start		End			
Encroachments ltem		38.7256	92 °	38.725692	0		
item				-121.8065	90 °	-121.806590	0
DWR ID DWR_NA0021_01_s _ 2015_21							
Action/Comments							
Debris							



View of a couch on the waterward side of the levee looking upstream. Spring 2015.

* Location	** Rating		+ Issue Type
LS : Land Side N/A : Not Applicable WS : Water Side CR : Crown	A : Acceptable M : Minimally Acceptable U : Unacceptable	N : Not Inspected/Rated C : Corrected A/W : Acceptable but Monitor & Maintain	Ma : Maintenance Deficiancy Ob : Design & System Obsolescence En : Enforcement